

REMARKS/ARGUMENTS

Applicants would like to thank the Examiner for the careful consideration given the present application and for granting a telephonic interview in this case. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe the subject matter that applicants regard as the invention.

An applicant initiated telephonic interview occurred on April 24, 2008. The participants were Examiner Ramon Barrera and attorney Brad Spencer. Claims 1 and 29 were discussed, along with the Uozumi and Mohler references. No agreement was reached during the interview.

Claims 1 and 29 have been amended.

Claims 1-8, 18 and 29 were rejected under 35 U.S.C. 103(a) as being unpatentable over FR2828000 in view of Uozumi or Mohler. Claim 1 recites:

“the mobile magnetic portion (20) being in levitation when it is not in contact with an attraction area (11, 12), characterized in that the mobile magnetic portion (20) includes a magnet-based part (200) with reduced magnet weight, this part (200) having an overall volume, and a mass, the mass of the reduced magnet weight part is less than the mass of a part having the same overall volume and whose overall volume is totally occupied by the magnet, the magnet-based part (200) having edges which are facing both attraction areas, said edges being spared by the reduced magnet weight.”

Uozumi teaches a movable armature 4 that is disposed in a gap between a yoke 1 and a core member 2a. The yoke 1 has a groove 1a for receiving the armature 4. The armature 4 is placed in a magnetic gap located between the free end surface of the core 2a and the two sides of the groove 1a. The free end surface of the core 2a is an attraction area. When a solenoid is not

energized, the armature 4 is biased towards the free end surface of the core 2a by a magnet 3. When the solenoid is energized, the magnetic field of the magnet is canceled and the armature 4 springs back away from the free end surface of the core 2a.

The armature 4 has a groove 14 for reducing the weight and mass of inertia of the armature. The groove occupies a portion of the armature 4 where the magnetic flux density would be low even if the groove were not present (3:62-64). This is shown in Fig. 5 in which the magnetic flux lines pass from the yoke 1 and curve through the armature 4 to the core 2a. Therefore, Uozumi clearly teaches that the groove 14 should be located in a portion where the magnetic flux density is low.

In FR2828000, the magnetic flux flowing from one attraction area to another is homogenous in the mobile magnetic portion. No region of the mobile magnetic portion has a low magnetic flux density. Therefore, a person of ordinary skill in the art would be unable to modify FR2828000 as taught by Uozumi. Uozumi clearly teaches that weight reduction should occur where magnetic flux density is low. However, such a region cannot be found in the mobile magnetic part of FR2828000, because the magnetic flux is homogenous there. Consequently, the person of ordinary skill in the art would not combine the teaching of FR2828000 and Uozumi to arrive at the claimed invention.

Further, Uozumi does not disclose a mobile portion that is in levitation when it is not in contact with an attraction area (as required by claim 1). In Uozumi, the mobile portion (armature 4) is attached to an arm 9 and supported on the free end of a sheet spring 5.

Claim 1 recites, "the mass of the reduced magnet weight part is less than the mass of a part having the same overall volume and whose overall volume is totally occupied by the magnet." Claim 1 requires a magnet-based part having a reduced mass while maintaining a

constant overall volume. When compared to a part having the same overall volume, but which is totally occupied by the magnet, the reduced magnet weight part has less mass. Mohler teaches a modified armature 16' whose mass has been reduced by removing excess material. The overall volume of the modified armature 16' is shown by a bold line in Fig. 3. Contrary to claim 1, Mohler reduces the mass of its armature 16' by *reducing* volume. Mohler does not teach, "the mass of the reduced magnet weight part is less than the mass of a part having the same overall volume and whose overall volume is totally occupied by the magnet." Therefore, the combination of FR2828000 and Mohler fails to teach all of the limitations of claim 1.

For the reasons discussed above, the combination of FR2828000 and Uozumi or Mohler fail to teach all of the claimed limitations. Applicants submit that claim 1 is allowable over the cited combinations of references and withdrawal of the rejection is respectfully requested. Claims 2-8 and 18 depend from claim 1 and, therefore, are also allowable over the cited combinations of references. The arguments provided above with respect to claim 1 are also applicable to claim 29.

Claim 19 was rejected under 35 U.S.C. 103(a) as being unpatentable over FR2828000 in view of Uozumi or Mohler and further in view of Uetsuhara. Claim 19 depends from claim 1 and, therefore, is allowable for the reasons discussed above with respect to claim 1.

In light of the foregoing, it is respectfully submitted that the present application is in condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. BRV-39291.

Respectfully submitted,
PEARNE & GORDON, LLP

By: 
Brad C. Spencer – Reg. No. 57,076

1801 East 9th Street
Suite 1200
Cleveland, Ohio 44114-3108
(216) 579-1700

Date: May 27, 2008